



Aptiv PLC
455 National Avenue
Mountain View, CA 94043

April 5, 2018

Elizabeth Humphreys
Chief, Occupational Licensing
Department of Motor Vehicles
2570 24th Street
Sacramento, CA 95818

RE: Supplement to the Annual Report of AV Mode Disengagements

Dear Ms. Humphreys,

I write, on behalf of the Autonomous Driving business unit at Aptiv PLC (hereinafter “Aptiv”), in response to your letter of February 16, 2018 (the “Letter”). In January 2018, Aptiv submitted a report (the “Report”) to California’s Department of Motor Vehicles on disengagements of our autonomous vehicle system during our public road testing in California between December 1, 2016 and November 30, 2017, in compliance with Title 13, Chapter 1, Article 3.7, § 227.46 of the California Code of Regulations. In the Letter, you requested that Aptiv provide clarification on several of the terms used in the Report to explain the causes and conditions of disengagements and provide examples of why those disengagements occurred.

Three of the terms identified in the Letter described issues that led to disengagements: “Traffic light detection,” “Localization divergence,” and “Other Driver-unexpected behavior.” Here is additional detail on each of these issues:

“Traffic light detection” refers to a situation in which the autonomous vehicle system encountered difficulty identifying a particular traffic light. For example, the vehicle’s imaging system may have been oversaturated because of a lighting condition or the traffic light may have been occluded by an obstacle.

“Localization divergence” refers to a situation in which there was insufficient GPS contact for an extended period of time, which can cause a discrepancy between the vehicle’s actual position and the position expected by the autonomous vehicle system. For example, the vehicle may lose GPS contact because it is stopped in traffic in a tunnel or under a bridge.

“Other Driver-unexpected behavior” refers to a situation in which another vehicle—not the Aptiv vehicle—was operated in a manner outside the norms of safe traffic behavior, generally in violation of the traffic laws, which prompted the safety driver to take over manual control. For example, another vehicle may have driven in the wrong direction down a one-way street.

Additionally, the Letter asks for clarification on the Report’s reference to a “Poor Sun Condition.” This term explains the conditions in which a disengagement due to a traffic light detection issue occurred. In this situation, the position of the sun caused an oversaturation of the



vehicle's imaging system, which made it difficult for the system to determine the color of a traffic light.

I trust that these explanations resolve your questions about the Report. If I can provide any further information, please do not hesitate to contact me at karl.iagnemma@aptiv.com.

Warm Regards,

A handwritten signature in black ink, appearing to read "Karl Iagnemma", written over a horizontal line.

Karl Iagnemma
President, Autonomous Driving
Aptiv PLC

CC: Glen De Vos, Chief Technology Officer, Aptiv PLC
Bernard Soriano, Deputy Director, California Department of Motor Vehicles
Brian Souble, Chief Counsel, California Department of Motor Vehicles